Michelson Interferometer

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MICHELSON INTERFEROMETER
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A doctor looks at a high-resolution image of the retina by using optical coherence tomography. Astronomers in two different geographical locations receive a radio signal from the same source in space, and between the two signals detailed data is obtained about the source of the radio waves. A physicist observes the light emitted from a source to determine its frequency. All of these scenarios utilize the Michelson interferometer.

I will talk about using a Michelson interferometer to measure wavelengths of various light sources. One of the problems I had was localizing the fringe patterns. An interferometer takes a light source and splits the source into two parts. The two parts are reflected off mirrors and then recombine after traveling different distances. Due to the placing of the mirrors, a pattern of dark and light bands, which are called fringes, form and is sensitive to small movements in the mirrors. The interferometer is capable of detecting changes in the mirror’s positions within one ten-millionth of a meter.